

DEPARTMENT OF NATURAL RESOURCES

POSITION DESCRIPTION

Working Title: Equipment Research and Development Technician / Mechanic

Classification: Forestry Technician - Advanced

POSITION SUMMARY: This position researches, develops, fabricates and assembles new forest firefighting equipment and provides preventative maintenance, troubleshooting, repair and training on specialized forestry and fire equipment. This position provides technical, administrative and paraprofessional fire control activities serving as a certified forest fire equipment operator who operates specialized/complex forest fire control equipment including tractor/plows and engines.

LOCATION, GEOGRAPHIC SCOPE & TRAVEL REQUIREMENTS: The job holder travels frequently within the geographic scope of the assigned station, to the Forestry Equipment Research & Development Center in Tomahawk as well as occasional statewide travel. Travel outside the state may be required to support Wisconsin equipment on national incidents. See the WiscJobs job announcement for specific locations.

SCOPE OF AUTHORITY: This position works under the general guidance and supervision of the Equipment Operations Team Leader.

GOALS & ACTIVITIES:

10% A. Forest Fire Suppression

- A1. Suppress forest fires as directed by the incident commander and/or perform the role of initial attack incident commander (ICT4) when the first department employee on scene.
- A2. Perform fireline duties as a qualified advanced firefighter (FFT1) heavy equipment boss (HEQB) or engine boss (ENGB).
- A3. Independently operate and maintain certification of all types of forest fire control equipment, including type 6 engines and heavy units, in a safe and effective manner.
- A4. Provide for the protection of structures threatened by wildland fire and coordinate/direct actions of fire departments, emergency firefighting crews and/or other agencies in this effort as needed.
- A5. Employ standard safety practices, practice and follow standard fire orders, recognize, and communicate with fireline supervisors, any situations that appear unsafe.

5% B. Forest Fire Preparedness

- B1. Conduct fire training for private equipment contractors, conduct pre-fire inspections of contractor's equipment, documenting any problems.
- B2. Assist with pre-planning of Incident Command post sites, including installation of telecommunications cables and equipment.
- B3. Ensure fire readiness of Station fire cache; maintain accurate trailer inventories, conduct annual hose inspections, pump testing and maintenance.
- B4. Conduct daily and weekly preventative maintenance and safety inspections on all fire equipment to insure fire readiness according to established standards.
- B5. Attend training and maintain proficiency in fire suppression and fire equipment operation.

- 35% C. Specialized Fabrication Duties**
- C1. Develop, fabricate and assemble new systems, equipment and vehicles especially wildland firefighting units.
 - C2. Utilize detailed drawings, blueprints, hydraulic/electric/air system schematics, sketches, verbal instruction, or copying a similar unit to accurately lay-out, fabricate, paint and assemble parts and assemblies.
 - C3. Employ skilled welding, blacksmithing and shaping techniques and equipment to fabricate and assemble parts. Must be familiar with all methods of welding on various materials including steel, aluminum, stainless and plastics.
 - C4. Use all machine shop equipment to make parts to required tolerances.
 - C5. Install wiring systems, pumps, plumbing, water tanks, fire plows, hydraulic and air systems, bodies and other modifications to trucks and equipment.
 - C6. Troubleshoot, diagnose, maintain and repair vehicles and equipment, both in-house and in the field including water pumps and water handling equipment, electrical, mechanical, pneumatic and hydraulic systems.
 - C7. Perform tests and analyze performance of systems and components to assure proper operation.
 - C8. Conceive and fabricate test fixtures, including establishing appropriate instrumentation and test sequences and procedures. Design and perform tests to determine capabilities of vehicles/systems and conformance to specifications and/or regulations. Record and report test data including analysis of performance.
 - C9. Develop improved methods to increase production, improve quality, and reduce costs of maintenance, fabrication, assembly and repairs.
 - C10. Inspect contractor-fabricated units for compliance with specifications and make recommendations for acceptance or rejection.
 - C11. Check supplies and maintain inventories needed for projects.
 - C12. Dispatch pool vehicles, cache vehicles and forestry equipment.
 - C13. Estimate and keep accurate time and material records on each project.
- 35% D. Specialized Automotive Duties**
- D1. Diagnose problems in all sizes of diesel and gasoline engines on all types of heavy equipment and fire fighting vehicles including fuel injection, electrical systems and pumps.
 - D2. Diagnose problems in drive trains, power delivery systems, suspension systems and undercarriages of all types of heavy equipment, trucks, tractors and fire fighting vehicles.
 - D3. Diagnose and repair problems in all pool vehicles and equipment including automobiles, light trucks, forklifts, lawn mowers and snowmobiles.
 - D4. Operate all diagnostic and repair equipment, tools and machines necessary to accomplish tasks.
 - D5. Perform periodic maintenance inspections and complete required maintenance on all types of specialized wildland firefighting equipment and vehicles, specialized forest site preparation equipment, trucks, tractors, trailers, forklifts and automobiles.
- 15% E. Shop Maintenance Activities and Special Projects**
- E1. Maintain inventory of shop tools, shop supplies, spare/service parts, equipment manuals and service bulletins.
 - E2. Maintain monthly and annual shop budget including debit/credit vouchers and charge backs for service to other functions.
 - E3. Perform maintenance and repair of shop tools and equipment.
 - E4. Repair and service hydraulic presses, brakes, shears, welders, air compressors, pneumatic and electrical power tools.

- E5. Perform routine preventive maintenance on equipment and vehicles.
Conduct and maintain scheduling of equipment annuals for the territory.
- E6. Conduct grounds and facilities maintenance as needed/required including HVAC equip.
Perform snow removal and lawn maintenance and operate all associated equipment.
- E7. Fabricate and paint signs, maintain and inventory forestry displays.
- E8. Maintain current file of shop manuals and service bulletins and preventive maintenance checks for DNR Forestry vehicles and equipment.
- E9. Complete required paperwork and prepare reports.
- E10. Serve as a project leader on special projects as assigned.
- E11. Inspect work of other team members to ensure production of high quality work.
- E12. Provide equipment and vehicle information to in-house and field personnel.
Maintain facilities as clean and presentable during hours of operation.
- E13. Perform all other duties assigned by supervisor.

KNOWLEDGE, SKILLS AND ABILITIES:

Upon Appointment

- 1. Ability to obtain and maintain a CDL (Commercial Driver's License).
- 2. Knowledge of techniques and skills needed to conduct maintenance on fire suppression equipment and facilities.
- 3. Ability to estimate time and materials needed to accomplish tasks.
- 4. Knowledge of reading and understanding blueprints, drawings, schematics and technical instructions.
- 5. Knowledge of measuring skills using tapes, steel rules, calipers, micrometers, scales, pressure and flow meters, both manual and electronic.
- 6. Knowledge in use of shop equipment and hand tools including wrenches, jacks, overhead cranes etc.
- 7. Knowledge in the use of pneumatic and electrical power tools.
- 8. Knowledge of basic plumbing skills.
- 9. Knowledge of basic wiring skills.
- 10. Knowledge of techniques and equipment used in vehicle and equipment fabrication and repair.
- 11. Knowledge of reading parts manuals and obtaining necessary parts for projects.
- 12. Knowledge of gasoline and/or diesel engine theory of operation and systems function.
- 13. Knowledge of vehicle power trains, suspension systems and undercarriages.
- 14. Knowledge in diagnosing problems in vehicles and systems including using test equipment.
- 15. Knowledge of developing, monitoring and performing maintenance plans for vehicles and equipment.
- 16. Knowledge of hydraulic motors, pumps, plumbing and control systems.
- 17. Professional work experience or education in automotive, small engine, truck or heavy equipment repair.
- 18. Knowledge of basic forest fire management and suppression including map reading, legal descriptions, safety procedures, suppression tools and use.

Full Performance

- 1. Knowledge of radio communication, equipment, and generally accepted procedures.
- 2. Working knowledge of and ability to operate forest fire equipment and vehicles.
- 3. Working knowledge of and ability to operate trucks, tractors and fork lifts safely.
- 4. Knowledge of water pumps and firefighting water handling systems.
- 5. Knowledge of techniques and skills needed to develop, produce and deliver technical training in classroom and field settings.
- 6. Knowledge of industry and government standards relative to automotive vehicles.
- 7. Knowledge of safety regulations and policies.
- 8. Working knowledge of forestry policies applicable to forest fire suppression equipment.

9. Working knowledge of automotive shop management.
10. Working knowledge of department policies, regulations, handbooks and manual codes.
11. Knowledge of forest fire behavior, suppression tactics and techniques, fireline safety standards, command system and communication systems.
12. Working knowledge of available department assistance programs to rural fire departments.
13. Knowledge of rural fire department organization, equipment, training and tactics in relation to wildland fire suppression and structural fire service.

SPECIAL REQUIREMENTS:

- Meet requirements to operate state vehicle, travel independently and on a timely basis.
- Meet requirements to operate forklift trucks.
- Meet and maintain physical fitness standards required by the Department.
- Within six months of appointment, obtain and maintain a Wisconsin Class A CDL to operate specialized heavy-duty fire equipment
- Within five years of appointment must advance from:
 - Advanced Firefighter/Squad Boss (FFT1), Engine Operator (ENOP) and Heavy Equipment Operator (HEQP) which must be attained by end of probationary period, through
 - Incident Commander Type 4 (ICT4).
 - Engine and Heavy Equipment Single Resource Boss (ENGB, HEQB).

PHYSICAL REQUIREMENTS & ENVIRONMENTAL FACTORS:

Sedentary Work: Exerting up to 10 pounds of force occasionally (about 25% of time).

Light Work: Exerting up to 20 pounds of force occasionally and/or up to 10 pounds frequently (25-49% of time).

Medium Work: Exerting up to 50 pounds of force occasionally and/or up to 20 pounds frequently (<25% of time).

Heavy Work: Exerting up to 100 pounds of force occasionally and/or up to 50 pounds frequently (<25% of time).

Physical Activity Requirements: The position requires bending at the waist, kneeling, crouching, climbing, balancing, lifting, carrying, pushing, pulling, reaching, handling, fingering, sitting, standing, talking, hearing, seeing, clarity of vision and walking on foot.

Physical Surroundings and Hazards: Work activities occur indoors and outdoors in varying amounts. The employee could be exposed temperatures below 32 degrees for periods of an hour or more, and temperatures above 100 degrees for periods of more than one hour. Noise conditions require the employee to shout to be heard and wearing of hearing protection for some work duties. The employee may be exposed to vibrating movements of the extremities or whole body. There may be exposure to hazards and situations (such as proximity to mechanical parts, electrical current, etc.) and/or exposure to conditions that affect the respiratory system or the skin, such as wildland and structural smoke, welding fumes, odors, chemicals, poison ivy and/or insect bites that could result in bodily injury if not properly handled.

Equipment Used: Two-way radio, drip torch, dozer with furrow plow, portable pumps, fire shelters, chainsaw, hand tools, office equipment, lawn care and snow removal equipment, power tools, machine tools, welder, hydraulic and chain hoists, cutting torches, tire changer, forklifts and tractors, electronic equipment, motorized vehicles and fire suppression equipment.

Type of Assigned Vehicle(s): Medium duty service truck and trailer; Type 4 Engine with trailer and Tractor Plow (JD450 dozer or equivalent)

Telework Evaluation: Unavailable due to most work performed at the assigned station or Equipment Center.

PD Addendum of WI DNR Competencies

Service Excellence for Customers & Partners

- Make excellent customer/partner service a top priority and actively seek to improve it.
- Work to identify and understand the needs of others and strive to create the most value for them, focusing on their satisfaction.
- Responsive to changes in customer/partner goals, deliver on promises, follow-up appropriately thus service delivery is marked by fairness, integrity, high ethical standards and the utmost respect for others in order to generate trust as an outcome.
- Actively seeks to achieve results that best strike the balance with the Division's service role and regulatory authority with the customer/partner goals.

Effective & Fair Decision Making

- Analyze situations fully and accurately to reach productive, and where appropriate, uniform decisions. Consult appropriate parties/stakeholders as necessary and identify the key concerns and/or issues that need to be addressed in order to make the best decision possible.
- Discern the pertinent facts and develop clearly based objective criteria.
- Make timely, well-reasoned decisions by integrating information and perspectives appropriately.
- Evaluate the immediate and longer-term consequences of decisions.
- Use sound professional judgment in their analyses and decisions.

Effective Communication

- Express ideas in a clear, concise, and effective manner, both orally and in writing.
- Ability to present, facilitate and instruct as part of staff meetings and partner activities.
- Use correct grammar and sentence structure in communications.
- Strong listening skills, particularly when different viewpoints are expressed.
- Openly share information, transparent and keep all concerned parties informed.

Interpersonal Relationships & Partnership Building

- Build and effectively utilize relationships and influence networks to achieve goals.
- Share knowledge and build trust with colleagues, managers and external partners.
- Tactful when dealing with sensitive issues and personalities.
- Exercise social intelligence: have a high level of self-awareness, are aware of impact on others.
- Work through complex situations effectively, diplomatically and with sensitivity without losing credibility or trust.
- Recognize sensitive information and exercise discretion.
- Approach professional conflicts in a constructive manner. Refrain from personal attacks and excessive emotions.
- Demonstrate sound judgment under pressure and retain focus on desired business outcomes in difficult conditions.
- Proactive in addressing problems.
- Exemplify the commitment to the DNR's core value of respect- to work with people, to understand each other's views and to carry out the public will; maintain integrity and treat everyone with fairness, compassion, and dignity.

Demonstrates Leadership

- Establish vision, set direction and initiate strategy by analyzing forces and trends that impact the program. Anticipates future needs, challenges and identifies potential options and constraints; critically evaluates information to promote the most effective position.
- Identify the implications of decisions and actions on people, other parts of the organization, external partners and customers. Understand the abstract and think in terms of whole systems and complex interrelationships. Synthesize large, disparate bodies of information.
- Mobilize staff to face and tackle tough challenges. Facilitate staff through the change process by helping them to navigate loss and work through discomfort so that they can adapt to emerging conditions and see the potential within broader organizational strategies and priorities.
- Establish formal and informal relationships with others to provide feedback, information, support and resources to help them develop new or higher levels of skill and ability.
- Empower others to reach higher levels of performance through trust, delegation, participation and coaching.
- Provide direction, support and encouragement amongst their team colleagues and partners.
- Hold up high standards of excellence towards the accomplishment of desired outcomes and objectives.
- Inspire confidence and respect which is motivating for others, builds positivity; keep the team cohesive and partners confidently engaged.